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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,109	07/10/2001	Ravindranath Droopad	210136US99	7228

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EXAMINER
BAUMEISTER, BRADLEY W

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 01/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/901,109	Applicant(s) Droopad et al.
	Examiner B. William Baumeister	Art Unit 2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Oct 29, 2002*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-114* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☐ Claim(s) _____ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☒ Claims *1-114* are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. This application--being part of the Motorola bulk-filing project--has been re-assigned to a new Examiner.

a. Applicant's arguments filed 10/29/2002 have been fully considered, and the newly assigned Examiner agrees with Applicant that the previous prior-art rejections were improper. Accordingly, those prior-art rejections are withdrawn.

Election/Restriction

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-13, 27-29, 87-98, 108 and 112-114, drawn to a multilayer stack comprising some or all of the following layers: monocrystalline Si substrate/amorphous oxide/ accommodating buffer/O-doped monocrystalline layer/monocrystalline material, classified in class 257, subclass 190.

IA. Claims 87-98 and 112-114, drawn to the species of Invention I wherein the accommodating buffer is monocrystalline.

IB. Claims 23 and 108, drawn to the species of Invention I wherein the accommodating buffer is amorphous.

II. Claims 14-21 and 99-107, drawn to a multilayer stack of invention I in combination with an additional template layer interposed between the

accommodating buffer layer and the oxygen-doped layer, classified in class 257, subclass 190.

IIA. Claims 15, 16, 100 and 101, drawn to the multilayer stack of invention II wherein the template layer is composed of a Zintl material.

IIB. Claims 17-21 and 102-107, drawn to the multilayer stack of invention II wherein the template layer is composed of a surfactant and/or cap layer.

III. Claims 24-26 and 109-111, drawn to a multilayer stack of invention I in combination with an additional, optional oxygen-doped buffer interposed between the accommodating buffer layer and the oxygen-doped layer, classified in class 257, subclass 190.

IV. Claims 30-86, drawn to various methods of making multilayer structures, classified in class 438, subclass 1+.

3. The inventions are distinct, each from the other because of the following reasons:

a. Inventions IV and I-III are related as process of making and products made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case unpatentability of the Group I-III inventions would not necessarily imply unpatentability of the Group IV invention, since the devices of the group I-III inventions could be

made by processes materially different from those of the Group IV invention. For example, as an alternative to epitaxially depositing the monocrystalline oxygen-doped material layer on the underlying substrate as set forth in the method claim 30, or depositing the oxygen-doped material layer in a first partial pressure of oxygen as set forth in method claim 60, the structures of the product claims could be produced by forming the oxygen-doped material layer on a temporary substrate, and subsequently wafer-bonding it to the accommodating-buffer host substrate.

b. Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed: for example, combination claim 14 does not require that the accommodating buffer be an oxide such as a perovskite as set forth in subcombination claim 6. The subcombination has separate utility such as in a multilayer device wherein the oxygen-doped material is formed directly on the accommodating buffer without the use of a template layer.

c. Inventions III and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as

claimed: for example, combination claim 24 does not require that the accommodating buffer be an oxide such as a perovskite as set forth in subcombination claim 6. The subcombination has separate utility such as in a multilayer device wherein the oxygen-doped material is formed directly on the accommodating buffer without the use of an additional oxygen-doped buffer layer.

d. Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II/III has separate utility such as in a multilayer buffer structure that does not also include a O-doped buffer/template layer. See MPEP § 806.05(d).

4. This application also contains claims directed to the patentably distinct species of the claimed invention, set forth above as species IA-IB and species IIA-IIB, respectively.

a. If applicant elects either of inventions I or II, Applicant is further required under 35 U.S.C. 121 to elect a single disclosed species of the particular invention for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently,

i. Claims 1-13 and 27-29 are generic to Species IA and IB.

ii. Claims 14 and 99 are generic to Species IIA and IIB.

5. Because these inventions are distinct for the reasons given above, the inventions have acquired a separate status in the art because of their recognized divergent subject matter as shown

by their different classification, the search required for the invention of any one Group is not required for the other Groups, and/or separate examination would be required, restriction for examination purposes as indicated is proper.

6. Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic species claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

INFORMATION ON HOW TO CONTACT THE USPTO

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, **B. William Baumeister,** at **(703) 306-9165.** The examiner can normally be reached Monday through Friday, 8:30 a.m. to 5:00 p.m. If the Examiner is not available, the Examiner's supervisor, Mr. Eddie Lee, can be reached at (703) 308-1690. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

B. William Baumeister

Patent Examiner, Art Unit 2815

January 6, 2003